

IN THE CLAIMS

Please cancel Claims 1-12.

Please add the following claims.

Soys,

- 3. An isolated DNA encoding a raffinose synthase having the following
- properties:
- (1) action and substrate specificity: the raffinose synthase produces raffinose from sucrose and galactinol;
 - (2) optimum pH the raffinose synthase has an optimum pH of about 6 to 8;
- (3) optimum temperature: the raffinose synthase has an optimum temperature of about 35 to 40°C;
 - (4) molecular weight: the raffinose synthase has:
- (i) a molecular weight of about 75 kDa to 95 kDa estimated by gel filtration chromatography;
- (ii) a molecular weight of about 90 kDa to 100 kDa estimated by polyacrylamide gel electrophoresis; and
- (iii) a molecular weight of about 90 kDa to 100 kDa estimated by SDS-polyacrylamide gel electrophoresis under a reduced condition; and
- (5) inhibition: the raffinose synthase is inhibited by iodoacetamide, Nethylmaleimide, and myo-inositol.
- 14. The DNA of Claim 13, which wherein the ralfinose synthase comprises an amino acid sequence shown in SEQ ID NO: 1, 2 or 3.

No. An isolated DNA encoding a raffinose synthase, wherein the DNA is hybridizable under stringent conditions to a DNA comprising nucleotide numbers 56 to 2407 of SEQ ID NO: 4.

- 16. The DNA of Claim 15, wherein the stringent conditions are 0.1 x SSC, 0.1% SDS at 60°C.
- 17. An isolated DNA encoding a raffinose synthase having a homology of not Jess than 35% with respect to the raffinose synthase shown in SEQ ID NO: 5.
- 18. The DNA of Claim 17, wherein the raffinose synthase has a homology of not less than 40% with respect to the raffinose synthase shown in SEQ ID NO: 5.
- 19. The DNA of Claim 17, wherein the raffinose synthase has a homology of 65% in the region between the 510th and 610th aming acid of SEQ ID NO: 5.
- 20. An isolated DNA encoding a affinose synthase, wherein the DNA has a homology of not less than about 50% with respect to the nucleotide sequence of SEQ ID NO:

 4.
- 21. An isolated DNA encoding a raffinose synthase, wherein the DNA has a homology of not less than about 65% with respect to a region comprising about 300 nucleotide residues in the nucleotide sequence of SEQ ID NO: 4.
- 22 An isolated DNA encoding a raffinose synthase, wherein the DNA is obtained from a dicotyledonous plant.
- 23. The DNA of Claim 22, wherein the dicotyledonous plant is a *Cucurbitaceae*Leguminosae or plant
- 24. The DNA of Claim 22, wherein the dicotyledonous plant is a *Cucurbitaceae* plant.

- 25. The DNA of Claim 24, wherein the *Cucurbitaceae* plant is a melon or a cucumber.
- 26. The DNA of Claim 24, wherein the Cucurbitaceae plant is Cucumis melo or Cucumis sativus.
- 27. An isolated DNA encoding a raffinose synthase, wherein the DNA is obtained by a process comprising screening a cDNA library isolated from cucumber by hydridization with an oligonucleotide probe, wherein the oligonucleotide probe encodes a partial amino acid sequence of SEQ ID NO: 5.
- 28. The DNA of Claim 15, wherein the raffinose synthase has a homology of not less than 35% with respect to the raffinose synthase shown in SEQ ID NO: 5.
- 29. The DNA of Claim 15, wherein the raffinose synthase has a homology of not less than 40% with respect to the raffinose synthase shown in SEQ ID NO: 5.
- 30. The DNA of Claim 15, wherein the raffinose synthase has a homology of not less than 65% in the region between the 510th and 610th amino acid of SEQ ID NO: 5.
- 31. The DNA of Claim 13, wherein the DNA is hybridizable under stringent conditions to a DNA comprising nucleotide numbers 56 to 2407 of SEQ ID NO: 4.
- 32. The DNA of Claim 13, wherein the stringent conditions are 1 x SSC, 0.1% SDS at 60°C.
- 33. The DNA of Claim 13, wherein the stringent conditions are 0.1 x SSC, 0.1% SDS at 60°C.
- 34. The DNA of Claim 13, wherein the raffinose synthase has a homology of not less than 35% with respect to the raffinose synthase shown in SEQ ID NO: 5.
- 35. The DNA of Claim 13, wherein the raffinose synthase has a homology of not less than 40% with respect to the raffinose synthase shown in SEQ ID NO: 5.